Modulbezeichnung:	**Exergames (EXGA)** (Exergames)	**5 ECTS**
Modulverantwortliche/r:	N.N	
Lehrende:	Benedikt Morschheuser, Daniel Roth	

Startsemester: WS 2021/2022	Dauer: 1 Semester	Turnus: jährlich (WS)
Präsenzzeit: 30 Std.	Eigenstudium: 120 Std.	Sprache: Englisch

Lehrveranstaltungen:

Exergames (WS 2021/2022, Vorlesung, 4 SWS, Daniel Roth et al.)

Empfohlene Voraussetzungen:

Basics in medicine, computer graphics or human-computer interaction, knowledge of neuroscience may be helpful.

Inhalt:

The module deals with the theory, design, and development of exergames. In the course, students will be provided with theoretical game-design and gamification foundations and work in small groups to realize working exergame prototypes. Sample topics of the theoretical discussions may include:

- Cyber Rehabilitation
- Gamification
- Game Design

Exemplary project themes could be:

- Location-based exergames that combine AR technologies with, sports and POIs in real world
- Designing exergames for patients with Mild Cognitive Impairment
- Designing gamified nature-based therapy approaches
- VR supported rehabilitation procedures for patients with motor impairments

The module is designed in an interactive format. Based on initial discussions, students research, design, develop, and evaluate solutions in the form of projects and studies in small groups following user-centered design and agile software engineering principles. Intermediate presentations of the project group members take place at regular intervals.

Lernziele und Kompetenzen:

By participating in the module, students

- can explain the application of Serious Games and Exergames in the context of health.
- are able to understand the technical and theoretical foundations of interdisciplinary interfaces between games and health.
- are able to apply this basic knowledge to conceptualize methodical solutions and empirical studies with basic tools.
- are able to interpret empirical findings from the literature in this field.
- they are able to apply game technologies for use cases in health, create applications, and collect empirical data based on learned methods.
- can implement software development projects in practice-oriented contexts.
- can apply fundamental project management principles, organize themselves in groups, work toward specific goals and consider relevant stakeholder needs.

Literatur:

Gilbert, S. (2016). Designing Gamified Systems: Meaningful Play in Interactive Entertainment, Marketing and Education. Focal Press, USA.

Radoff, J. (2011). Game On: Energize Your Business with Social Media Games. Wiley, USA.

Morschheuser, B., Hassan, L., Werder, K., Hamari, J. (2018). How to design gamification? A method for engineering gamified software. Information & Software Technology, 95. pp. 219-237.

Salen, K. (2004). Rules of play: game design fundamentals. MIT Press, Cambridge, USA.

Schell, J. (2008). The Art of Game Design: A Book of Lenses. Morgan Kaufmann Publishers, Burlington, USA.

McGonigal, J. (2011). Reality is broken: Why games make us better and how they can change the world. The Penguin Press, New York, USA.

Verwendbarkeit des Moduls / Einpassung in den Musterstudienplan:

Das Modul ist im Kontext der folgenden Studienfächer/Vertiefungsrichtungen verwendbar:

[1] **Artificial Intelligence (Master of Science)**
(Po-Vers. 2021s | TechFak | Artificial Intelligence (Master of Science) | Gesamtkonto | Nebenfach | Nebenfach Artificial Intelligence in Biomedical Engineering | Exergames)

[2] **Informatik (Master of Science)**
(Po-Vers. 2010 | TechFak | Informatik (Master of Science) | Gesamtkonto | Wahlpflichtbereich | Säule der anwendungsorientierten Vertiefungsrichtungen | Vertiefungsrichtung Graphische Datenverarbeitung | Exergames)

[3] **Informatik (Master of Science)**
(Po-Vers. 2010 | TechFak | Informatik (Master of Science) | Gesamtkonto | Nebenfach | Nebenfach Artificial Intelligence in Biomedical Engineering | Exergames)

[4] **Medizintechnik (Master of Science)**
(Po-Vers. 2018w | TechFak | Medizintechnik (Master of Science) | M7 Flexibles Budget Technische Fakultät | Exergames)

[5] **Medizintechnik (Master of Science)**
(Po-Vers. 2019w | TechFak | Medizintechnik (Master of Science) | Modulgruppen M1, M2, M3, M5, M7 nach Studienrichtungen | Studienrichtung Medizinische Bild- und Datenverarbeitung | Flexibles Budget / Flexible budget | Exergames)

[6] **Medizintechnik (Master of Science)**
(Po-Vers. 2019w | TechFak | Medizintechnik (Master of Science) | Modulgruppen M1, M2, M3, M5, M7 nach Studienrichtungen | Studienrichtung Medizinelektronik | Flexibles Budget / Flexible budget | Exergames)

[7] **Medizintechnik (Master of Science)**
(Po-Vers. 2019w | TechFak | Medizintechnik (Master of Science) | Modulgruppen M1, M2, M3, M5, M7 nach Studienrichtungen | Studienrichtung Medizinische Produktionstechnik, Gerätetechnik und Prothetik | Flexibles Budget / Flexible budget | Exergames)

Studien-/Prüfungsleistungen:

Exergames (Prüfungsnummer: 76811)
Prüfungsleistung, mehrteilige Prüfung
Anteil an der Berechnung der Modulnote: 100%
weitere Erläuterungen:
Project presentation (30 minutes) and written report (8-10 pages). Project presentation 50%, written report 50%. Presentations are held partly as a group, but graded individually.
Prüfungssprache: Englisch

Erstablegung: WS 2021/2022, 1. Wdh.: keine Angabe
1. Prüfer: D.Roth/Morschheuser (R30008)
